CLAIMS

1. (Previously Presented) A turf reinforcement mat for supporting soil, comprising:

at least one polymer net layer;

a non-woven mat comprising a plurality of tri-lobal polymer fibers, wherein a cross-sectional geometry of respective ones of the tri-lobal polymer fibers consists essentially of:

a substantially circular, substantially uniform core region,

three substantially convex and smoothly curved elongated lobes substantially equally spaced about a circumference of the core region, each elongated lobe consisting of a single, substantially symmetrical half-ellipse shaped convex member disposed along a portion of the circumference of the core region, a shortest distance between a geometrical apex of the convex member and the portion of the circumference of the core region being substantially equal to a longest width of the convex member along a geometrical axis perpendicular to a geometrical axis defined by a shortest distance between the apex and the portion of the circumference of the core region, and

three substantially concave and smoothly curved channels separating the elongated lobes, a portion of each smoothly curved channel comprising a plurality of points along the circumference of the core region, each smoothly curved channel being configured to capture at least one of sediment and water, to break up a flow and an energy of water passing over said soil and said mat; and

a polymer yarn, stitching said net layer to said non-woven mat.

2. (Canceled).

3. (Previously Presented) The turf reinforcement mat of claim 1, wherein each of the said tri-lobal polymer fibers is selected from the group consisting of polyolefins, polyesters, polyamides and blends thereof.

4. (Previously Presented) The turf reinforcement mat of claim 1, wherein each of said tri-lobal fibers has a length from about 2 inches (5 cm) to about 12 inches (30 cm).

5. (Previously Presented) The turf reinforcement mat of claim 1, wherein each of said tri-lobal polymer fibers has a density of from 300 denier (333 decitex) to about 2000 denier (2222 decitex).

6. (Previously Presented) The turf reinforcement mat of claim 5, wherein each of said tri-lobal polymer fibers has a density of from 500 denier (555 decitex) to about 1100 denier (1222 decitex).

7. (Previously Presented) The turf reinforcement mat of claim 1, wherein the polymer of said net layer is selected from the group consisting of polyolefins, polyesters, polyamdies and blends thereof.

8. (Previously Presented) The turf reinforcement mat of claim 1, further comprising a second polymer net layer, said non-woven mat being located between said first and second net layers.

9-17 (Canceled).

18. (Previously Presented) A turf reinforcement mat for supporting soil, comprising:

at least one polymer net layer; and

a non-woven mat attached to said polymer net layer, said non-woven mat comprising tri-lobal polymer fibers, wherein a cross-sectional geometry of respective ones of the tri-lobal polymer fibers consists essentially of:

a substantially circular, substantially uniform core region,

three substantially convex and smoothly curved elongated lobes substantially equally spaced about a circumference of the core region, each elongated lobe consisting of a single, substantially symmetrical half-ellipse shaped convex member disposed along a portion of the circumference of the core region, a shortest distance between a geometrical apex of the convex member and the portion of the circumference of the core region being substantially equal to a longest width of the convex member along a geometrical axis perpendicular to a geometrical axis defined by a shortest distance between the apex and the portion of the circumference of the core region, and

three substantially concave and smoothly curved channels separating the elongated lobes, a portion of each smoothly curved channel comprising a plurality of points along the circumference of the core region, each smoothly curved channel being configured to capture sediment and water, to break up a flow and an energy of water passing over said soil and said mate.

19. (Previously Presented) The turf reinforcement mater of claim 18, wherein each of said tri-lobal polymer fibers is selected from the group consisting of polyolefins, polyesters, polyamides and blends thereof.

20. (Previously Presented) The turf reinforcement mat of claim 18, wherein each of said tri-lobal fibers has a length from about 2 inches (5 cm) to about 12 inches (30 cm).

21. (Previously Presented) The turf reinforcement mat of claim 18, wherein each of said tri-lobal polymer fibers has a density of from 300 denier (333 decitex) to about 200 denier (2222 decitex).

23. (Previously Presented) The turf reinforcement mat of claim 21, wherein each of said tri-lobal polymer fibers has a density of from 500 denier (555 decitex) to about 1100 denier (1222 decitex).

24. (Previously Presented) The turf reinforcement mat of claim 18, wherein the polymer of said net layer is selected from the group consisting of polyolefins, polyesters, polyamides and blends thereof.

25. (Previously Presented) The turf reinforcement mat of claim 18, further comprising a second polymer net layer, said non-woven mat being located between said first and second net layers.

26. (Canceled).